A VISUAL TEACHING AID

The two major resources of our nation are its people and its land. Our future as a great nation depends primarily on them. Our people must be wisely educated for the responsibilities of democratic citizenship. One of the most important phases of citizenship education is the study of the land and its proper use. At the same time, one of the most effective ways of carrying on the education of citizens is through using the natural and human resources available.

The study of trees and their growth and conservation serves a dual purpose. It provides an excellent means of preparing boys and girls for their responsibilities of citizenship. It also promotes the proper use of soil and the production of an adequate supply of trees which is so essential to the national welfare. In addition, it meets the requirement that good education should begin with the child's environment.

Teachers who are looking for new materials dealing with important current problems will find many suggestions in this teaching unit, and overburdened teachers with heavy teaching loads will find specific aids for making their teaching more functional. The topic is of general concern throughout the nation and of immediate concern in each local community where trees are grown for pulp wood. Even more important it provides a sound, vital, and interesting topic for the educational development of boys and girls.

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suggestions for teachers

The land is man's home. Its resources are our main support. Whether we live in a city or a village, or on a farm, or almost anywhere else, we depend on what is produced from the land. It gives us our food, metals, glass, leather, rubber, wood, paper—indeed most of the necessaries of life.

Some of the things we take from the land cannot be replaced. We can't grow more coal, oil, and metals. When the earth's supply of them is used up—or the part of it that we can get at—we shall have to use what substitutes we can find.

But the thin layer of topsoil on the surface of the earth is the part of the land that concerns us most. It is the source of most of the things we use to sustain life. For it is out of this soil that things grow; it has the food that growing plants need—all but what the sun, air, and water provide.

Yet millions of tons of this precious topsoil in our own country are washed or blown away every year. There's no quick way of replacing it. And the floods and freshets that come down from higher land rip great gashes in the land below, so that it no longer furnishes even good pasture for livestock.

Besides the land that has been washed out, millions of acres have been worn out. The plant food has been used up by growing and taking off the same crop year after year.

Thus a great deal of our farm land has become unsuitable and unprofitable for cultivation. Many farms are deserted. Others do not provide a decent living for the people who live on them. We often say that Man has conquered Nature; but he has abused it, too. Today we know how man can work in partnership with nature. To learn how to do this, and then to do it, will help make our country and every part of it a land of greater opportunity for all of us.

the wealth of woodlands

One great natural resource—trees—not only grows in poor soil, but improves it, too. But in tree growth, as in other crops, the better the land the better the crop.

We have in the United States about 450 million acres of commercial forest land. This may be compared with about 350 million acres of land producing other crops (besides land used for pasture only). About a quarter of these woodlands are publicly owned; the rest is divided among more than four million owners—most of them owners also of cultivated land.

New uses are being found for wood products every year. It is estimated that 12,000 commercial products are now made from wood pulp and wood fiber. And, since our population is growing steadily, the demand is increasing, too. But, even with this increased demand, the North American forests can meet the challenge with modern forest management — scientific growth, harvest, and conservation practices, plus increasing attention to forest fire prevention and protection.

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The South has about one third of the nation's forest land. It is the source of one of its greatest natural resources. To stop the waste and bring cutting and growth into balance is a prime economic problem.

Since 1920, Southern pine has come into increasing use for pulp—now exceeding any other species. Pine seedlings will grow to commercially usable size in fifteen years. So the Southern farmer who has otherwise worthless land on his farm may get a regular crop of trees from it by planting pine seedlings and giving them much less attention than he gives other crops. Thus he adds materially to the value of his farm; and the rest of his land may be worth more, too, because the woodland may give it some protection against wind and erosion.

It is estimated that 100 million dollars worth of pulpwood alone is now bought from individual woodland owners in the South each year. It contributes to the welfare of the whole community. It is like adding a lot of new productive land, for the production of a new and needed crop, to the area of the county or state or nation. Yet pulpwood is only one of the many products for which wood is used.

general aims of the unit

We hope that this material will help to develop among pupils (1) an appreciation of the importance of these resources to themselves, their families, and their communities; (2) an understanding of ways to conserve, use wisely, and extend these resources; and (3) above all, a will to act and lead others to add not to the scarcities but to the abundances that are within the promise of American life.

what trees do

1. Trees grow where other crops won't grow, for their roots can break into the subsoil and find their support there. They give value to worn-out land or land that cannot be profitably cultivated.
2. Trees make topsoil by the decay of the leaves and branches they shed and the breaking up of the subsoil.
3. Trees protect the forest subsoil and enable it to absorb rainfall so that its run-

off is reduced or slowed. The danger of gullying floods is lessened, while the network of roots and litter holds the soil together and retains water.

4. Trees furnish a reliable crop year after year, if the woodlot is properly managed, with less cost and less dependence on weather than any other crop.

(See pages 4-11 of *The Crop That Did Not Fail*)

starting woodlots

(1) On land worn out by overcultivation or overproduction

(2) On hillsides or slopes where row crops are liable to be washed out

(3) On cut-over land not suitable for other uses

(See page 11 of *The Crop That Did Not Fail*)

Woodlands are important to every farm—a vital necessity where there are hills and slopes. They improve poor land, protect good land, and increase the farmers' income.

cutting practices

The care and cutting of Southern woodlands has changed greatly since pioneer days. Rather than indiscriminately clear cutting an entire area, scientific cutting practices are becoming more important. A full discussion of the advantages and disadvantages of different cutting practices is provided on page 12, *The Crop That Did Not Fail.*

questions to discuss

These suggestions for classroom discussion are related to the previous pages as well as to *The Crop That Did Not Fail.* They are designed to stimulate independent thinking on the part of your pupils and to bring out the values that come from free discussion.

THE SOIL

1. *What makes topsoil? Why is it so valuable?*
2. *What soil is usually just under the topsoil? Why doesn't it feed more plants?*
3. *What do we mean by erosion? Why do rains (now, more than formerly) make gullies through farm lands?*
4. *How does fertile land become less productive? Where have you seen such land?*

THE WOODLANDS

1. *What uses did pioneers make of their woodlands?*
2. *Why do we now have a different view of the value of our woodlands?*
3. *What are the two main dangers to our wood supply?*
4. *What can you do to help protect it?*

WHAT TREES DO

1. *Why can trees grow where many other plants cannot?*
2. *How do trees make topsoil? How do they hold it together?*
3. *How do trees slow up the run-off of rain and reduce floods?*
4. *Why is a wood crop more reliable than other crops?*

STARTING A WOODLOT

1. *What lands are easily put into woodlots?*
2. *What work is necessary in making such a start?*
3. *Why is a woodlot important to any farm?*

MANAGING THE WOODLOT

1. *What have been the different practices in woodlot management?*
2. *What reasons are there now for and against such practices?*
3. *What is meant by selective cutting?*
4. *Where have you seen a well managed woodlot?*

PROTECTING THE WOODLOT

1. *What are the most common causes of forest fires?*
2. *What tools and equipment are used in fighting forest fires?*
3. *How would you protect a woodlot against fire?*

THE EXPANDING MARKET

1. *How many different uses for wood pulp can you name?*
2. *What uses of wood pulp do you notice around school? At home?*
3. *What special advantages do we have in the South for producing wood pulp?*
4. *What benefits does the farmer get from a well-managed woodlot?*
5. *What benefits do other people in the community get?*

suggested activities

We learn by reading, by listening, by discussion, by observation, and by doing things that bring various faculties into play. Some of the following activities may be adapted for use with your classes. The resourceful teacher will think of various activities (other than these suggestions) that will promote interest and understanding, and personal responsibility toward the conservation and wise use of our natural resources.

Such activities may and should involve all departments of the school at one time or another. This interest may well be carried over into such groups as 4-H clubs and Future Farmers of America.

1. A class gave a demonstration of how hardpan does not absorb moisture and how good topsoil does. They did this by tipping a wide board or shingle and pouring some water down the board. Of course, the water ran off onto the table. Then they attached some blotting paper to the board with thumb tacks and poured the water as before. The blotter absorbed the water just as good topsoil does.

2. A class in mathematics attempted to capitalize the value of planting trees. They estimated that after fifteen years the woodland could produce a steady income. They then estimated how much this land is worth, using assumed values.

3. Pupils have checked the yield of crops on some good bottom land and have compared these yields with those of the slopes and hills above. In this way they have shown whether or not it pays to cultivate poor land.

4. Classes may look at badly gullied land below a cleared hillside. Or pictures may be gathered and put up as an exhibit. They are obtainable from conservation sources. Report of findings can then be made.

5. Classes and committees have visited some well managed woodlots. They usually take advantage of this opportunity to interview the owner concerning his care of the woodlot. They look into these matters, for example: (a) fencing out livestock to prevent over-grazing and injury to young trees; (b) plowing of fire breaks around the woodlot; (c) plan of harvesting the trees; (d) cash return for the "crop"; etc.

6 Students visited an unattended woodlot (pages 12 and 13, *The Crop That Did Not Fail*) and reported on whether it seemed to them necessary:

   (a) to clean up the woodlot so as to give young trees a chance to get plenty of sunlight and water;

   (b) to cut out and sell old, suppressed, mature, and scarred or damaged trees, which will be hosts to insects and disease;

   (c) to cut out scrub oak and other undesirable hardwoods to make place for pine which, on suitable land, is more profitable and faster growing;

   (d) to do cutting or thinning of the pine, to leave seed trees, or to plant some seedlings.

7. Students can locate or check with fire officials to chart the number and causes of forest fires in their localities. At the end of the school year they can make a class report of their findings.
8. Photography clubs have made displays of their pictures showing the various phases of this problem, such as how "thin" land could be used for growing trees to better advantage than any other crop.
9. Classes have shown soil conservation movies for the school assembly, for the Parent-Teacher Association, for farmers' groups, and for other interested persons.

Students like some recognition for the work they do. A radio station may be willing to assign a period for a report to the whole community. Possibly a local group of farmers or the Parent-Teacher Association would like to hear the report. A school assembly would be interested in the findings. The local newspaper often is pleased to carry a report on the work of a class or committee.

evaluation

We like to know that what we have taught has been of value to our students.

Actually, the only real test of the effectiveness of our teaching is how our pupils act in the years to come. For the present, if we can encourage a mastery of the essential facts and if there is evidence of enthusiasm for the topic, then we have good evidence that our instruction has been successful.

The conservation movement is gathering momentum every year. The work of the schools assures that this important program will continue.

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bibliography

Additional interesting and informative teaching aids are available to teachers (posters, booklets, slides, and movies) on erosion control, soil conservation, tree farming, seedling planting, fire protection and fire fighting.

For specific materials available, check with your State Forester, local county agent, county forester, Soil Conservation Service technician, and local forest industries.

Also, write to:

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service, Washington, D. C.

UNITED STATES DEPARTMENT OF AGRICULTURE
Forest Service, Washington, D. C.

SOUTHERN PULPWOOD CONSERVATION ASSOCIATION
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